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FORMATS

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All Formats

Image Formats

Snowbound Software supports **over 100** popular image and document formats, as we many proprietary ones. Browse our comprehensive list below. Supported image forma be decompressed for viewing, manipulation or conversion. Or consult our format matr complete listing.

Browse list by first letter of image format

Most Popular | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y |

All Image Formats

ABIC	Proprietary check imaging format created by IBM's high volume check scanners.
AFP	Included in the IBM ImagePlus meta format that may include raster or text data. Also see MMR (MO:DCA)
Alpha Channel	A mask that specifies how a pixel's colors should be me with another pixel when the two are overlaid.
Annotations	
ASCII	Non-formatted text file
ATT	AT&T Group 4 Bitmap. Support may require an offset adjustment.
BMP_COMPRESSED	Bit-Mapped. Originated by Microsoft, graphics format u: in the Windows environment
BMP_UNCOMPRESSED	Bit-Mapped. Originated by Microsoft, graphics format u: in the Windows environment
BROOK_TROUT	

CALS	Computer-Aided Acquistion and Logistics Support. Government/Department of Defense specification.
CCITT_G3	
CCITT_G3_FO	
CCITT_G4	
CCITT_G4_FO	
CIF (ABIC)	
CIMS (ABIC)	Check Image Management System Image Format. Use Carreker Corporation within their repositories for check images.
CLIP	Microsoft Windows clipboard format (also known as CL
CMYK	Cyan-Magenta-Yellow-Black. Four plane color support, standard color model used in offset printing for full coloi documents and images.
COD (Liberty IMS)	Special Document/image format generated by Liberty II systems.
COFF (ABIC)	Common Object File Format. A binary file format similai ABIC, used in UNIX and Windows.
CUT(HALO)	Bitmap graphics (also known as Halo). Originated by M Cybernetics, CUT images are 8 bits per pixel and the palette is stored in a separated file.
DCS	Bitmap graphics, QuarkXPress format.
DCX	Bitmap graphics, created by Intel as multi-page PCX foi
DIB	Device-Independent Bitmap. Standard bit-mapped grap format used by Microsoft Windows where colors are represented in a format independent of the final output device (a monitor or printer).
DICOM	Grayscale medical image format.
EPS (Preview)	Encapsulated PostScript. Graphics file format used by 1 PostScript language and originated by Adobe. Also see PostScript Snowbound products read and display bitma representation files (preview TIFF or JPEG image) and embedded TIFF images. Snowbound does not currentl\ decompress full EPS.
EPS_BITMAP	Encapsulated PostScript compressed bitmap format.

EPS_BITMAP_G4	Encapsulated PostScript compressed bitmap format.
ESP_BITMAP_LZW	Encapsulated PostScript compressed bitmap format.
EXIF	Exchangeable Image File. Format that is a standard for storing interchange information in digital photography ir files using JPEG compression.
FILEMAGIC	See MAG format (Westbrook) Also see MAG
FileNet	Unique Image format developed by FileNET Corporatio viewing black and white documents
FlashPix	Developed by Eastman Kodak Company, a format for storing digital images, especially digital photographs.
GEM	A graphics file format developed by Digital Research fo storing 1-bit images.
GIF	Graphics Interchange Format. A bit-mapped graphics fi format created by CompuServe and used in HTML and color imaging. Supports color in various resolutions, an also includes data compression for scanned images an similar documents.
GIF_INTERLACED	Similar to GIF, except it stores the raster data in an interlaced order until the image is filled.
Grayscale	Format often created by scanners, where a continuous-image is converted to an image that a computer can manipulate.
Group 3	Black and white compression format used for fax image Also see TIFF_G3_FAX
Group 4	Powerful black and white compression algorithm with ru length encoding. Also see TIFF_G4_FAX, TIFF_G4_FAX_FO, TIFF_G4_FAX_STRIP
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HALO CUT	Originated by Media Cybernetics, CUT images are 8 bil per pixel and the palette is stored in a separated file.
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HTML	HyperText Markup Language, a tag-based language us to create documents for the Web.
ICC profiles	Functions available for extracting and embedding color profiles into a variety of image formats including JPEG TIFF
ICO	Microsoft ICON format. Contains standard device-independent bitmap (DIB).

ICON	
IFF_ILBM	Interchange File Format. Graphics/sound format used c Commodore Amiga computers for native bitmap format
IMG	
IMNET	Medical image format.
IOCA (MO:DCA)	Image Object Content Architecture. IBM raster image fc within MO:DCA and similar to Group 4 images.
JBIG	Joint Bi-level Image experts Group. Highly-compressed format which is stored in a TIFF header, or within its ow header.
JBIG2	Joint Bi-level Image experts Group. Highly-compressed format based on symbol recognition and replacement.
JEDMICS	Defense Department CCITT Group 4 tiled image format storing government documents, drawings and images. Also see CALS
JPEG	Joint Photographic Experts Group. A powerful compres algorithm for color and grayscale images that greatly reduces image size, but with some detail lost in the pro
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JPEG2000	Wavelet-based algorithm that produces better compres with higher quality than JPEG for color and grayscale images.
KOFAK	Bitmap file format.
KQP	Konica Quality Picture format. Konica's native camera f format.
LASER_DATA	Also see LaserView
LaserView	Compression for documents originated by LaserData C (also known as LaserData LaserView).
Liberty IMS	Liberty Information Management Systems. COD black a white format
LZW	Short for Lempel-Zif-Welch, a popular data compressio technique used in GIF and TIFF/LZW compression, patented and owned by Unisys Corporation. (Patents expired in 2003 and 2004). Also see PDF , TIFF_LZW, TIFF_2D, GIF
	Original Apple bitmap file format (also known as MAC

MACPAINT	PAINT).
MAG	Westbrook Technology Filemagic format
MMR (MO:DCA)	Modified Modified Read. By IBM ImagePlus. File format black and white documents.
MO:DCA	IBM's ImagePlus Architecture for storage of document images. Also see AFP, MMR (MO:DCA), IOCA (MO:DCA), PTO (MO:DCA)
MS Excel	Microsoft Excel Spreadsheet format for structuring and analyzing data. Also see MS Word
MS Word	Microsoft's Word document format for for storage of lett reports, faxes, manuals and more.
MSP	Microsoft Paint. Bitmap graphics file format.
NCR	A unique black and white image compression format.
PCD (PhotoCD)	PhotoCD. Graphics file format for storing digital photographs at multiple resolutions developed by Eastr Kodak Company
PCL	Printer Control Language. Printer graphics/data format developed by Hewlett Packard and used in many of the laser and ink-jet printers. PCL 5 and later versions supp scalable font technology called Intellifont.
PCX	Originally developed by ZSOFT for its PC Paintbrush program, a bitmap file format for graphics programs run on PCs. Supported by most optical scanners, fax progra and desktop publishing systems.
PDF	Portable Document Format - better known as Adobe Acrobat format. File format developed by Adobe which captures formatting information from a variety of deskto publishing applications, making it possible to create anc transmit documents that have appearance on most mor and printers, independent of hardware and operating system.
PICT	Bitmap file format developed by Apple.
PNG	Portable Network Graphics. Bit-mapped graphics forma created to replace the GIF file format because GIF uses patented data compression algorithm called LZW. Most recent versions of Netscape and Internet Explorer supp PNG.
PostScript	PostScript file for text and graphics. Snowbound output EPS or Postscript. We can extract and display embedd TIFF images in our Windows and Unix products (check Java availability). Snowbound reads and displays bitma representation files (preview TIFF or JPEG image) in al products. Snowbound does not currently input full EPS

Powerpoint	Microsoft Powerpoint presentation product format. Sup[development scheduled.
PowerPoint	
PSD	Adobe Photoshop graphics file format for storing compressed or uncompressed RGB or CMYK images.
PTOCA (MO:DCA)	Presentation Text Object Content Architecture is the da layer used to hold customer information in a MO:DCA ir
RAST	A unique raster format originated by Sun Microsystems
RTF	Rich Text Format. An interchange format from Microsof exchange of documents between Word and other docur preparation systems. Support development in progress. date: Q1 2005
Run Length Encoding	Run-Length Encoding. File extension for graphics with 1 compression method that converts consecutive identica characters into a code consisting of the character and tl number marking the length of the run. The longer the ru the greater the compression. Works well with black and white graphics.
SCITEX	Proprietary format originated by Scitex Corporation for grayscale and CMYK color images.
SUN	Raster image format native to Sun UNIX platforms.
TARGA	Truevision Targa bitmap graphics (also known as TGA)
TARGA16	Truevision Targa bitmap graphics (also known as TGA)
TIFF	Tagged Image File Format. One of the most widely supported file formats for storing bit-mapped images. Graphics can be any resolution, and can be black and white, grayscale or color.
TIFF_2D	
TIFF_ABIC	
TIFF_ABIC_BW	
TIFF_CMYK	
TIFF_G3_FAX	ANSI baseline Group 3 compression embedded in a TII
TIFF_G4_FAX	ANSI baseline Group 4 compression embedded in a TII
TIEE C4 EAY EO	

TIFF_G4_FAX_STRIP

TIFF_G4_FAX_STRIP	
TIFF_HUFFMAN	TIFF compression format that uses an algorithm for the lossless compression of images based on the frequenc occurrence of a symbol or pixel representation in the fil that is being compressed.
TIFF_JBIG	ANSI baseline JBIG compression embedded in a TIFF.
TIFF_JPEG	ANSI baseline JPEG embedded in a TIFF.
TIFF_LZW	Short for Lempel-Zif-Welch, a popular data compressio technique. Algorithm can be used to compress TIFF file and includes the look-up table of codes as part of the compressed file. Unisys owns the patent, and a license be required (Patents expire in 2003 and 2004).
TIFF_PACK	Run-length encoding (RLE) algorithm for compressing images within a TIFF framework.
TIFF_UNCOMPRESSED	Uncompressed, raw binary data within a TIFF framewol
WBMP	Wirless BitMap. A graphic format developed for Micros(Windows, and optimized for mobile computing (wireles: devices.
WINFAX	A proprietary header with CCITT Group 3 compression.
WMF	Windows Metafile Format. A graphics file format used t(exchange graphics information between Microsoft Winc applications. Snowbound supports bit-mapped (raster) images.
WPG	
XBM	X Windows file format, encodes each pixel as an ASCII byte.
XEROX_EPS (preview)	
XPM	X Windows bit-mapped file format stored as ASCII data Each pixel is stored as an ASCII byte.
XWD	X Windows system window Dump. Raster format, each is stored as an ASCII byte.

If you have a suggestion of an image format that Snowbound Software should suppor Please contact us!

A string encoding of Presentation Address

Reference Identification	RFC1278
Reference Details	S.E. HARDCASTLE-KILLE, *A string encoding of Presentation Address*, Internet informational RFC 1278, November 1991.
Reference Descriptions	**Abstract:**
	Annotation: Keywords: *OSI*; *ASN.1*
Reference Resources	**Google:** Search for ["A string encoding of Presentation Address" S.E. Hardcastle-Kille] **URI:** ftp://ftp.rfc-editor.org/in-notes/rfc1278.txt
Bibliography Navigation	Reference List; Author Index; Title Index; Keyword Index; Association Index

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Fax Session Requirements; Real-Time vs. Session

- *To*: <ietf-fax@xxxxxxx>, <tr29-list@xxxxxxxxxxxxxxx>
- *Subject*: Fax Session Requirements; Real-Time vs. Session
- *From*: dduehren@xxxxxxxxxxxxxxx
- *Date*: Thu, 24 Apr 97 15:24:15 -0500
- *Sender*: owner-ietf-fax@xxxxxxx

```
IP Fax bridges two distinct technology groups: traditional G3
facsimile and IP, particularly email.  The goal of the standards
should be to serve both groups well.

Fax Session Requirements.

1. The requirement mentioned in the charter is that confirmation of
   delivery occurs before the end of the session.
2. There is another Key Requirement: Capability negotiation occurs
   between the end terminals.  This includes the legacy group 3
   machines.  Negotiation is what seperates fax from file transfer.

Reference Models/Matrix

At Brooktrout we have identified at least 5 different end terminals
for IP Fax protocols.  These include:

1. Traditional G3 fax machines who are connected to the IP network via
   the PSTN and a gateway.
2. Email based messaging systems.  This includes SMTP mail as well as
   things like voice mail systems that use something like VPIM for fax
   messages.
3. Traditional G3 fax machines who are connected to the IP network via
   an adapter box.
4. LAN Fax.
5. Internet Aware Fax Terminals.  This device can be visualized as a
   G3 fax machine with an IP connection instead of, or in addition to,
   a phone jack.

We believe that standards should be developed that can serve all of
these end terminals.  This implies a matrix, where the protocol and
location of the interworking (gateway) function need to be specified
for each intersection.  It is also our belief that both Message based
and Session based standard solutions can be developed for all the
intersections on the matrix.

Our particular focus for session based fax is on what is sometimes
called Telephone Replacement Service.  In this case, session based fax
means hard real time fax over IP.
```

Session vs. Real Time

At the IETF-fax BOF meeting in San Jose last December, there was
general agreement that Real Time fax was a special case of Session
fax. There was also thinking that there could be and, probably should
be, one protocol for session based fax.

I agree with this sentiment, with the caveat that it meet the
requirements of real-time fax, especially in the case of a traditional
G3 fax machine faxing to a traditional G3 fax machine where both are
connected to an IP network via the PSTN. If the difficult case can be
solved, the other cases fall out. We have identified four
characteristics of Real Time Fax in this case. They are:

1. The Sender sees, at the beginning of the call (session), the
   receiving machine's CID. (The number that appears in the LCD .
   display of most fax machines)
2. Standard T.30 Transparency (no NSF). This includes support for
   future enhancements. An example of this is the soon to be approved
   security extensions for facsimile which provide secure fax
   transmission from one machine to another, end-to-end. This
   involves a multi-pass negotiation session at the beginning of the
   call.
3. Confirmation of delivery at the end of the phone call (session).
4. Minimal call elongation compared to a call via the PSTN.

This is Telephone Replacement Service, and there is a lot of work
being done to develop approaches and standards to make this work.
From a protocol point-of-view it means that the T.30 protocol engines
in the two end devices are sync'd together in real time.

There is no reason why an approach that works for G3 to G3 fax, could
not work between other end terminal devices. Such an approach would
merely require a T.30 protocol engine in each terminal device or
gateway to a Message service.

Standards for Real Time Fax

Products are in use today which provide Real Time Fax service over
packet data networks, based on ITU standards. These products are
sometimes called FPADs (Fax PADs). They are based primarily on ITU
recommendations X.38 and X.39. The data network is X.25. These
services operate in many countries around the world, and have provided
a great deal of experience to the developers of those systems of how
to create a reliable service.

We, at Brooktrout, believe that this body of experience is of great
value in developing standards that will work well, on other packet
switched networks, particularly IP networks. In fact we have proposed
that the message standard, X.39, be adapted for use on IP networks.
We are also aware of developers who have successfully migrated X.25
based products to IP that are being field tested at this time.

X.39 was chosen because it exists and can do the job. It is a
standard for passing messages between two gateways. The gateways
communicate with the end fax machines and keep the T.30 engines in the
two end devices in-sync with each other. The approach for achieving
this in the presence of variable network delay is shown in X.38,
although it is by no means a complete description of what is needed to

achieve reliable service.

END OF PART ONE.

I intend to follow this with additional contributions. Future
contributions will look at several additional aspects of Real Time
Fax including:

1. The requirements for a time message passing protocol that can
   support Real Time Fax.
2. Demod-Remod approaches to Real Time Fax.
3. Advantages of Fax Pad,
4. The network requirements for Real Time Fax
5. Quality of Service issues for Real Time Fax
6. Studies underway regarding Real Time Fax
7. T.30 enhancements to ease timing problems: TNR, RNR and negotiated
   timers.
8. A Hybrid approach supporting S&F and Real Time is desirable.

- David Duehren
  Vice President of Research & Development
  Brooktrout Technology Inc.

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All Formats

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Browse list by first letter of image format

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- *Subject*: Fax Session Requirements; Real-Time vs. Session
- *From*: dduehren@xxxxxxxxxxxxxxx
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At Brooktrout we have identified at least 5 different end terminals
for IP Fax protocols.  These include:

1. Traditional G3 fax machines who are connected to the IP network via
   the PSTN and a gateway.
2. Email based messaging systems.  This includes SMTP mail as well as
   things like voice mail systems that use something like VPIM for fax
   messages.
3. Traditional G3 fax machines who are connected to the IP network via
   an adapter box.
4. LAN Fax.
5. Internet Aware Fax Terminals.  This device can be visualized as a
   G3 fax machine with an IP connection instead of, or in addition to,
   a phone jack.

We believe that standards should be developed that can serve all of
these end terminals.  This implies a matrix, where the protocol and
location of the interworking (gateway) function need to be specified
for each intersection.  It is also our belief that both Message based
and Session based standard solutions can be developed for all the
intersections on the matrix.

Our particular focus for session based fax is on what is sometimes
called Telephone Replacement Service.  In this case, session based fax
means hard real time fax over IP.
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Session vs. Real Time

At the IETF-fax BOF meeting in San Jose last December, there was
general agreement that Real Time fax was a special case of Session
fax. There was also thinking that there could be and, probably should
be, one protocol for session based fax.

I agree with this sentiment, with the caveat that it meet the
requirements of real-time fax, especially in the case of a traditional
G3 fax machine faxing to a traditional G3 fax machine where both are
connected to an IP network via the PSTN. If the difficult case can be
solved, the other cases fall out. We have identified four
characteristics of Real Time Fax in this case. They are:

1. The Sender sees, at the beginning of the call (session), the
   receiving machine's CID. (The number that appears in the LCD
   display of most fax machines)
2. Standard T.30 Transparency (no NSF). This includes support for
   future enhancements. An example of this is the soon to be approved
   security extensions for facsimile which provide secure fax
   transmission from one machine to another, end-to-end. This
   involves a multi-pass negotiation session at the beginning of the
   call.
3. Confirmation of delivery at the end of the phone call (session).
4. Minimal call elongation compared to a call via the PSTN.

This is Telephone Replacement Service, and there is a lot of work
being done to develop approaches and standards to make this work.
From a protocol point-of-view it means that the T.30 protocol engines
in the two end devices are sync'd together in real time.

There is no reason why an approach that works for G3 to G3 fax, could
not work between other end terminal devices. Such an approach would
merely require a T.30 protocol engine in each terminal device or
gateway to a Message service.

Standards for Real Time Fax

Products are in use today which provide Real Time Fax service over
packet data networks, based on ITU standards. These products are
sometimes called FPADs (Fax PADs). They are based primarily on ITU
recommendations X.38 and X.39. The data network is X.25. These
services operate in many countries around the world, and have provided
a great deal of experience to the developers of those systems of how
to create a reliable service.

We, at Brooktrout, believe that this body of experience is of great
value in developing standards that will work well, on other packet
switched networks, particularly IP networks. In fact we have proposed
that the message standard, X.39, be adapted for use on IP networks.
We are also aware of developers who have successfully migrated X.25
based products to IP that are being field tested at this time.

X.39 was chosen because it exists and can do the job. It is a
standard for passing messages between two gateways. The gateways
communicate with the end fax machines and keep the T.30 engines in the
two end devices in-sync with each other. The approach for achieving
this in the presence of variable network delay is shown in X.38,
although it is by no means a complete description of what is needed to

achieve reliable service.

END OF PART ONE.

I intend to follow this with additional contributions. Future
contributions will look at several additional aspects of Real Time
Fax including:

1. The requirements for a time message passing protocol that can
   support Real Time Fax.
2. Demod-Remod approaches to Real Time Fax.
3. Advantages of Fax Pad,
4. The network requirements for Real Time Fax
5. Quality of Service issues for Real Time Fax
6. Studies underway regarding Real Time Fax
7. T.30 enhancements to ease timing problems: TNR, RNR and negotiated
   timers.
8. A Hybrid approach supporting S&F and Real Time is desirable.

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